FOUNDATION DESIGN AND DETAILING CHECKLIST

Name of Project:	Input data	Originator:	Input name and initials	Date:	
Name of Structure:	Input data	Checker:	Input name and initials	Date:	
Structure Number:	Input data				
Project Number:	Input data				
PIN:	Input data				

TITLE BLOCK	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Complete all information required in the standard title. • Top line = project name • Second line = structure name • Third line = sheet name					
Complete the title block.					
Fill in initials, dates, and signatures.					

DESIGN	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Meet the requirements of AASHTO LRFD and the UDOT Structures Design and Detailing Manual(SDDM) and as shown on the Abutment Design Sheets, DD-1A and DD-1B, and the Bent Design Sheet, DD-4.					
Verify the material strengths used in design match the design data listed on the S&L sheets.					
Apply all the superstructure loads to the foundation.					
Apply the approach slab loads to the abutment foundation. Do not apply a live load surcharge behind the abutment.					
Check the longitudinal thermal movement and loading due to the movement.					
Check the lateral thermal movement and the loading due to the movement.					
Verify the pile loading and movement does not exceed the pile capacity.					
Verify the soil bearing pressure does not exceed the soil capacity.					
Meet the shear key design requirements specified in the SDDM.					
Verify that the foundation geometry is compatible with adjacent structures, walls and utilities.					
Check the EQ displacements and loads.					
Include the soil loads over the footing in design.					
Verify that the foundation design includes column plastic hinging loads or the appropriate elastic EQ loads.					
Check the interaction with walls or other structures.					
Do not batter the piles.					
Allow 6” of construction tolerance in pile or drilled shaft details. Pay reductions apply to piles greater than 6” from the design location and piles are rejected if greater than 12” from the design location.					

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PLAN	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Show the North Arrow and verify the North Arrow direction.					
Label the horizontal control lines of the bridge and feature crossed. Label the bearings of the control lines.					
Provide stationing and ticks along the control lines. Provide at least two ticks with stationing labels on each alignment.					
Label the PC, PT, PI stations.					
Label the PGL.					
Provide intersection stations at the control line intersection locations.					
Label the centerline of foundation and label the bearing of the centerline of footing.					
Show the abutment stem or bent columns or bent walls but do not label.					
Label the centerline of columns.					
Label the angle between the horizontal control line and the centerline of footing. Use the skew angle convention.					
Label and dimension the limits of granular backfill borrow. Use a minimum of 3'-0" behind the abutments and bents. Use a minimum of 2'-0" around the wingwalls and finwalls.					
Show all the dimensions in feet and inches.					
Dimension the foundation geometry and connect the dimensioning to the control line. • Dimension the pile or drilled shaft spacing along centerline of foundation • Dimension the out to out of the foundation • Show and label the outline of wingwalls • Dimension the wingwall length and width • Show and label the outline of finwalls • Dimension the finwall length, width and spacing • Show the station at the centerline of bearing at abutments and at the centerline of bent caps at the intersection with the control line • Dimension between the centerline of bearing of the abutments • Dimension from the centerline of bearing on abutments to centerline of bent or centerline of bent to centerline of bent at each support along the control line. • Define the bottom of footing elevations • Dimension the angles and layout of the wingwall foundations • Show and dimension the phases					
Show and label outlines of the existing foundations.					
Show adjacent retaining walls. Label all types of walls as follows. • WALL R-XXX					
Show the location of temporary shoring when temporary shoring is anticipated. Label the temporary shoring. • APPROXIMATE TEMPORARY SHORING LIMITS SEE NOTE X.					
Screen in the existing contour lines.					
Show the utilities. Label the critical utilities or utilities interfering with the foundations.					
Typical title: **FOUNDATION PLAN** • Use other descriptive titles as needed to distinguish between adjacent structures defined by a single structure number.					

NOTES AND QUANTITIES	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Place the quantities table in the lower right hand corner and place the notes above the quantities table.					
Add any construction phasing notes required for use of precast elements.					
Add the appropriate notes: 1. ELEVATIONS ENCLOSED IN RECTANGLES INDICATE BOTTOM OF FOOTING ELEVATIONS. 2. SEE "PILE DETAILS" FOR SIZE, DETAILS AND THE PILE EXTENSION INTO THE FOUNDATION. 3. SEE "DRILLED SHAFT DETAILS" FOR SIZE, DETAILS AND TESTING REQUIREMENTS. 4. EXISTING STRUCTURE FOUNDATION LOCATION AND UTILITY LOCATIONS ARE APPROXIMATE AND ARE SHOWN FOR INFORMATION ONLY. VERIFY LOCATIONS PRIOR TO CONSTRUCTION. 5. GRANULAR BACKFILL BORROW EXTENDS FROM THE BOTTOM OF THE ABUTMENT AND WINGWALL TO THE APPROACH SLAB. 6. GRANULAR BACKFILL BORROW EXTENDS FROM THE BOTTOM OF THE BENT FOOTING TO THE TOP OF THE BENT FOOTING. 7. ALL DIMENSIONS SHOWN ON ABUTMENTS ARE TYPICAL FOR BOTH ABUTMENTS. 8. ALL DIMENSIONS SHOWN ON BENTS ARE TYPICAL FOR ALL BENTS. 9. ADJUST PILE LOCATIONS UP TO X TO AVOID EXISTING PILES. MAINTAIN A MINIMUM EDGE DISTANCE OF X AND A MINIMUM PILE SPACING OF X. 10. BOTTOM OF FOUNDATIONS ARE LEVEL. 11. OVEREXCAVATE X BELOW BOTTOM OF FOOTING ELEVATIONS AND REPLACE WITH GRANULAR BACKFILL BORROW 12. SEE "SOIL DATA SHEET 1 OF X" TO "SOIL DATA SHEET X OF X" FOR SOIL BORING INFORMATION. 13. PERFORM X PDA TESTS, X AT EACH ABUTMENT AND X AT EACH BENT. 14. PROVIDE SHORING AS REQUIRED FOR CONSTRUCTION. SHORING LOCATION SHOWN IS APPROXIMATE. DETERMINE ACTUAL SHORING LOCATION PER THE CONTRACTOR DEFINED CONSTRUCTION SEQUENCE.					Designer determines and lists movement tolerance if the pile adjustment note used.
Specify the construction sequence if the construction sequence is nonstandard or if a specific construction sequence is required for precast elements.					
Show a quantities table. At a minimum list the granular backfill borrow quantity. List other quantities as necessary.					

SECTION	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Provide sections through foundations when significant foundation excavation is required or when anticipating temporary retaining walls.					
Show the approximate temporary shoring location when anticipating temporary shoring. Label the temporary shoring as follows: • APPROXIMATE TEMPORARY SHORING LIMITS, SEE NOTE X.					
Show the existing ground line.					
Typical title: **SECTION X-X**					

FOUNDATION DATA	Provided (Originator)			Chk	Comments
	Yes	No	NA		
Provide a foundation data table for spread footings.					
If foundation data varies per support, list a table for each support.					
Use the following table. Below is a list of definitions for each table value. ϕ_b = Phi factor used in design. q_R = Bearing resistance of foundation material. q_{MAX} = Maximum bearing pressure. R_R = Sliding resistance of foundation concurrent with R_{MAX}. R_{MAX} = Maximum sliding force on foundation. e_R = Eccentricity limit in feet. E_{MAX} = Maximum eccentricity, maximum is closest to the toe of the footing. E_{MIN} = Minimum eccentricity, minimum is farthest from the toe of the footing.					

FOUNDATION DATA			
	STRENGTH 1	SERVICE 1	EXTREME EVENT
ϕ_b	X	X	X
q_R	X KSF	X KSF @ 1”	X KSF
q_{MAX}	X KSF	X KSF	X KSF
R_R	X KLF	X KLF	X KLF
R_{MAX}	X KLF	X KLF	X KLF
e_R	+/- X FT	+/- X FT	+/- X FT
E_{MAX}	X FT	X FT	X FT
E_{MIN}	X FT	X FT	X FT